

## Abstract

In a method of making a replication tool, replication parts for both two dimensional optical elements, such as are fabricated using micro-forming techniques, and three dimensional optical elements, that are typically formed using cutting techniques are present on the replication tool. A method of manufacturing a replication tool for a planar optical sheet includes mounting at least one optical element part on a base to form a master part and forming a conductive metal layer over the master part. The method also comprises electrochemically depositing over the conductive metal layer to form an electrochemically deposited layer, separating the electrochemically deposited layer from the master part. The invention also relates to the replication tool itself and optical circuits formed using the replication tool.